REMARKS

I. Status of the Application

Claim 26 has been amended to correct a minor informality. Applicants believe no new search is necessary in light of the amendment.

Claims 20, 21, 23, 24, 26-37 and 39-41 are pending in this application. The Final Office Action:

A. Rejects claims 20, 27, 31, 34-37, 39 and 41 under 35 U.S.C. 103 (a) as being unpatentable over US 7,042,863 to Morris (hereinafter "Morris") in view of US 2002/0064134 to Lee et al (hereinafter "Lee");

B. Rejects claims 21 and 24 under 35 U.S.C. 103(a) as being unpatentable over Morris in view of Lee and further in view of US Pub 2003/0103487 to Kim;

C. Rejects claim 26 under 35 U.S.C. 103(a) as being unpatentable over Morris in view of Lee and further in view of US 6,975,613 to Johansson;

D. Rejects claims 23, 28, 29 and 32 under 35 U.S.C. 103(a) as being unpatentable over Morris in view of Lee and further in view of US Pub 2002/0034172 to Ho;

E. Rejects claim 30 under 35 U.S.C. 103(a) as being unpatentable over Morris in view of Lee and further in view of US 7,317,713 to Taniguchi; and

F. Rejects claims 33 and 40 under 35 U.S.C. 103(a) as being unpatentable over Morris in view of Lee and further in view of US 7,292,588 to Milley.

In this response, Applicants respectfully traverse the prior art rejections of the claims and request favorable reconsideration of the application in view of the following remarks.

II. The Proposed Combination Does Not Teach or Suggest the Invention of Claim 20

As will be discussed in detail, the proposed combination of Morris and Lee does not arrive at the invention of claim 20.

A. The Morris Reference

The final Office Action takes the position that the Morris reference discloses "wherein synchronizing the second communication channel includes causing data exchange during a specified time slot, the specified time slot determined based upon a time slot in which data exchange occurs in the first communication channel", as required by claim 20.

Specifically, the final Office Action, states "see column 1, lines 51-54 [of the Morris reference] each slave unit is given the opportunity to use a time slot, read as a slave gets a time slot depending on how many time slots are taken by other slaves in the piconet, thus getting a time slot is based in part on another slave's time slot usage."

"Getting" a time slot is not the same as, and does not disclose, causing data exchange during a specified time slot as required by claim 20. A slave device getting a time slot depending on how many time slots are taken by other slaves in the piconet is merely getting any free or leftover time slots and thus not a specified time slot.

For example, column 1, lines 51-54, of the Morris reference indicates that a slave does not participate in data exchange during a specified time slot, but, at best, participates in data exchange on average once every fourteen slots:

> In the Bluetooth system each piconet includes a master unit and at least one slave unit. The Bluetooth protocol specifies a time-division duplex communication scheme in which each slave unit is polled by the master unit immediately prior to transmitting information. Once polled, the addressed slave unit transmits during the next time slot. Since each time slot is specified to be 625 microseconds in length, no members of the piconet other than the master unit and the addressed slave unit are able to transmit during the 1,250 microsecond duration of this exchange. The Bluetooth protocol currently allows for 7 active slave units within a given piconet, with each slave unit being given the opportunity to transmit information on average every 14 slots.

A "slave unit being given the opportunity to transmit information on average every 14 slots" means that a slave is not participating in data exchange during a specified time slot. Otherwise, a slave unit would transmit information for a specific number of slots and not an average.

In contrast, the specified time slot of claim 20 is a specific, particular time slot that is determined based upon a time slot in which data exchange occurs in the first communication channel. That is, a second slave subscriber participates in data exchange during a specified time slot that is determined based on the time slot in which data exchange occurs in the first communication channel between a master subscriber and a first slave subscriber.

Although Morris later teaches a slave subscriber participating in data exchange during a specified time slot, the specified time slot is based on a clock signal of the Bluetooth master and not based upon a time slot in which data exchange occurs in a first communication channel. Indeed, the Morris reference teaches that the "Bluetooth master is free to poll devices in any order it chooses." Such a teaching is in direct contradiction of basing a specified time slot upon a time slot in which data exchange occurs in the first communication channel as required by claim 20 because polling slave devices in any order results in slave devices performing data exchange in any order. Thus, the Morris reference does not teach causing data exchange during a specified time slot, the specified time slot determined based upon a time slot in which data exchange occurs in the first communication channel as required by claim 20.

B. The Lee Reference

The final Office Action takes the position that the Lee reference discloses "synchronizing the second communication channel to the first communication channel" and "determining a synchronization parameter for synchronization of the second communication channel, the synchronization parameter defining a phase offset between a first data interchange and a second data interchange, the first data interchange between the master subscriber and the first slave subscriber via the first communication channel and the second data interchange between the master subscriber and the second slave subscriber via the second communication channel" as required by claim 20.

In particular, the final Office Action cites paragraphs [0056]-[0058] of Lee against the above cited features. Lee, in paragraphs [0056]-[0058] or anywhere else in the reference, however, does not teach or suggest the above limitations. In fact, the rejection relies on a mischaracterization of the Lee art and Lee specifically fails to disclose, *inter alia*, a phase offset as required by claim 20.

The final Office Action, on page 5, takes the position that synchronizing the second communication channel to the first communication channel, as required by claim 20, is disclosed by paragraph [0056] of Lee: "see paragraph 56 [of the Lee reference], a parked slave (second device) receives a beacon broadcast (first channel that goes to first device) and uses that broadcast beacon to synchronize its own channel (second channel)."

Because Lee, at paragraph [0056], relates only to an SCO slave and a parked slave, Applicants assume the "first device" referenced above is an SCO slave. As such, characterizing a beacon broadcast as a "first channel that goes to first device" is a mischaracterization of the beacon broadcast. As explained by Lee, a beacon channel (wherein beacon broadcasts are transmitted) is established by a master when one or more slaves are parked:

> [0014] The master establishes a beacon channel between transmission channels at regular intervals, allowing parked slaves to synchronize to the master or request switching to the active mode for their desired communication.
>
> [0015] If the beacon channel duration is fixed by a master for maintaining connection with parked slaves, the network is inefficiently used, especially in the piconet environments where the number of parked slaves and the type of Synchronous Connection Oriented (SCO) slaves are varied. ***That is, when the duration of the beacon channel is fixed at a value longer than the minimum duration necessary for maintaining connection with the then parked slaves***, the extra time can not [*sic*] be used for data transmission, resulting in inefficient use of the network.

Lee at paragraphs [0014] and [0015] (emphasis added). Thus, the beacon broadcast is not a first channel that goes to a first SCO device. Applicants submit that the § 103 rejection is thus improper and should be withdrawn.

Further, Lee fails to disclose a synchronization parameter defining a phase offset between a first data interchange and a second data interchange as required by claim 20. The final Office Action cites paragraphs [0056]-[0058] as disclosing this limitation. What paragraphs [0056]-[0058] in fact disclose is a timing chart illustrating the details of a time-division duplex scheme between slaves (parked or otherwise) with a master:

> [0056] Referring to FIG. 7, the master 10 allocates one SCO slot (hatched square in FIG. 7) in every third broadcast slot of the synchronous section (Dacc), and broadcasts during the rest of broadcast slots (indicated with arrows on the line t) to allow the parked slaves to synchronize to the master. As noted previously, every second slot in the synchronous section (Dacc) is a broadcast slot. The slots following the broadcast slots are for receiving the signals transmitted from the slaves 20. Accordingly, when a slave 20 requests unpark to the master 10 in the access window (Aw), the master 10 sends the unpark command to the slave 20 which requested unpark. The slave 20 which receives the command from the master 10 is switched into the active mode.
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> [0057] The number of slots in the access window (Aw) is determined such that access by each of the parked slaves within an unit access windows (Tacc) is allowed. It is preferable that there be multiple unit access window (Tacc) (k) is allowing re-access of the slaves 20 in case of transmission errors in wireless communication.
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> [0058] In addition to the multiple number (k) of unit access windows (Tacc) for re-access, it is further preferable that a checking window (Npoll) be added for checking unpark commands received from the master 10. The checking window (Npoll) is reserved for receiving an unpark command from the master 10 when a slave 20 requests unpark in the last unit access window (Tacc) of the access window (Aw).

Nowhere in Lee, including the above citation, is a phase offset between a first data interchange and a second data interchange discussed. In fact, Lee, at best, discloses a variable duration beacon channel, wherein the duration of the beacon channel is based on the type and number of slaves in a master's piconet, as an improvement over a beacon channel of a default duration. More specifically, Lee teaches a method and system that calculates a number of necessary beacon slots and slots per access window for efficient use of a piconet's resources. Such a method and system, as taught by Lee, is silent regarding a synchronization parameter defining a phase offset between a first data interchange and a second data interchange.

Tellingly, Lee is also silent as to any of the advantages of utilizing a phase offset, as explained in paragraphs [0043] and [0047] of the Present Application:

> [0043] If this data communication were to be extended by a further channel then it would be possible to deliberately select a period and to deliberately select a phase for this channel as a function of the period and the phase of the first channel, thus making it possible to quite deliberately relate timeslots in the two channels to one another. For the purposes of the present invention, this deliberate choice of the phase and period of the two channels is regarded as active synchronization.
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> . . .
>
> [0047] The particular advantage of the method according to the invention is that the degrees of freedom for data communication may be used as required on a user-specific basis. This allows power saving measures for data communication to be implemented in a very simple and elegant manner. The allocation of adjacent frames makes it possible to implement current saving measures in the other frames in a very elegant manner.

For the foregoing reasons, it is respectfully submitted that neither Morris nor Lee, either alone or in combination, teach or suggest each and every element of claim 20. For at least this reason, it is respectfully submitted that the rejection of claim 20 should be withdrawn.

III. Claim 34

Claim 34 also stands rejected as being unpatentable over Morris in view of Lee. Claim 34, similar to claim 20, recites a system that is configured "...to determine synchronization parameters for synchronization of the second communication channel", wherein "the synchronization parameters defining a phase offset between a first data interchange and a second data interchange", and wherein "the first data interchange between the master subscriber and the first slave subscriber via the fist communication channel and the second data interchange between the master subscriber and the second slave subscriber via the second communication channel". Therefore, the arguments presented above for the patentability of claim 20 are applicable to claim 34. Accordingly, for at least those reasons discussed above in connection with claim 20, it is respectfully submitted that the obviousness rejection of claim 34 should be withdrawn.

IV. Claims 21, 23, 24, 26-33, 35-37, and 39-41

Claims 21, 23, 24, 26-37, and 39-41 were rejected as allegedly being obvious over Morris and Lee and in some cases further in view of additional references. Claims 21, 23, 24, 26-37 and 39-41 depend directly or indirectly from and incorporate all of the limitations of their respective base claims 20 and 34 and the additional reference do not cure the deficiencies of Morris and Lee. Accordingly, for at least the same reasons as those set forth above in connection with claims 20 and 34, it is respectfully submitted that the rejection of claims 21, 23, 24, 26-37, and 39-41 should be withdrawn as well.

V. Conclusion

For the foregoing reasons, it is respectfully submitted that the applicant has made a patentable contribution to the art. Favorable reconsideration and allowance of this application is therefore respectfully requested.

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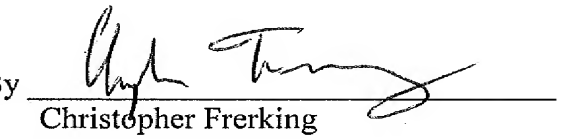
Respectfully Submitted,

By 

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